

## Estimation of SO<sub>2</sub> degassing at Miyake-jima volcano, on the basis of the piston model

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Miyake-jima volcano has been degassing  $3\text{-}4 \times 10^4$  ton/d of SO<sub>2</sub> since early September 2000. The piston-descending model, which has been proposed to explain characteristic seismic pulses observed in the early stage of the volcanic activity, provides relationship among pulse widths, geometrical property of the piston and the volume of magma reservoir. Estimated values of piston diameter and length are 300-600m and 3-3.5km, respectively, based on the descending rate of the caldera bottom, electro-magnetic observations and hypocenter distribution. Using these estimations, the volume of the magma reservoir becomes  $1.5\text{-}7.1 \times 10^{10} \text{m}^3$ . Estimated duration of SO<sub>2</sub> emission is 1.5-7 year if SO<sub>2</sub> content of magma is 540ppm. The duration reaches 5.5-26 year if SO<sub>2</sub> content is 2000ppm.